

State of New York     )  
                              :     SS:  
County of New York    )

AFFIDAVIT

On this day, Robert C. Ferber personally appeared before me and after being duly sworn, deposes and states:

1. That he is well qualified as a translator of German to English and is employed as such by Kenyon & Kenyon (One Broadway, New York, New York 10004);

2. That he has carefully reviewed the attached English language translation from the original document,

A SHOE, IN PARTICULAR A SHOE FOR SMALL CHILDREN  
from  
SCHUH, INSBESONDERE KLEINKINDERSCHUH

written in German; and

3. That the attached translation is an accurate English version of such original to the best of his knowledge and belief.



ROBERT C. FERBER

Subscribed and Sworn to before me this  
16<sup>th</sup> of July, 2004.

 7/16/04

Notary Public

**PATRICE P. JEAN**  
Notary Public, State of New York  
No. 02JE6093445  
Qualified in New York County  
Commission Expires June 2, 20 07

## Specification

## A SHOE, IN PARTICULAR A SHOE FOR SMALL CHILDREN

## Technical Field

The present invention relates to a shoe, in particular a shoe for small children, which supports the development of the foot in a natural way and, especially as a shoe when learning to walk, promotes the first steps of a small child.

## Background Information

10 Already in German Patent DE-C 10 70 962, it was established that the rotational mobility of the heel part of the sole with respect to the forward part of the sole, in the sense of a twisting/pronation, is essential for undisturbed subsequent movements of the foot. In addition, in that  
15 publication it is described as known that the insole and/or the outsole of the footwear are provided in the area of the articulated joint with cutouts that proceed from the edges of the sole and that are filled by inserts, which are made of a more pliant material than that of the insole or  
20 outsole. In the area of the articulated joint, the width of the sole, which is furnished with the inserts, corresponds roughly to the dimensions that are established by the vertical projection of the foot, so that the foot is protected by the base of the shoe. The overall depth of  
25 these cutouts can be smaller than the overall width of the sole in the area of the joint articulation, the cutouts being wider in the area of the edge of the sole than in the area of the interior of the sole. In place of a single cutout, it is also possible to assign to each edge of the  
30 sole a plurality of cutouts running roughly transverse to the longitudinal direction of the sole, whose edges,

bordering a cutout, essentially run parallel to each other and whose width corresponds at least to the thickness of the sole.

5 On the upper side of the sole is arranged a molded footbed support, which can be bonded in one piece to the material of the inserts that fill out the cutouts. The cutouts here are situated mainly on the outer edge of the foot, so that the sole of the forward area of the foot is connected via a  
10 roughly centered crosspiece to the outsole of the rear area of the foot.

From German Utility Patent U 87 14 923, it is known to use anatomically shaped shoe soles, which are anatomically  
15 formed in a natural way in accordance with the imprint of a healthy foot and which can be used for all shoes. It can be seen from the drawing that the sole in the area of the transition between the heel and the forefoot is not shaped in accordance with the outline of the foot, but rather in  
20 accordance with its contact surface. Therefore, in this area, there is a reduction in the width. The problem of rotational mobility is not described.

From German Patent DE-C-43 16 237, it is also known to  
25 provide a reinforcing element made of a fibrous material, which is configured as a supporting plate and which also traces the foot contact surface in the area of the outer edge of the foot.

30 Despite the measures proposed here, there remains a need for improvement in promoting unhindered physiological performance of the foot in all motions.

Presentation of the Invention

According to the present invention, the outsole in the area of the constriction has a connecting piece having a degree of flexibility such that a torsion of the front of the foot with regard to the back of the foot is impeded as little as possible, and high flexibility in the area of the front of the foot is provided to the outsole regarding the performance of the foot, as a result of an appropriate profiling.

As a result of the combination of an increased rotational mobility in the heel part of the sole with respect to the forward part of the sole, together with a zone of high flexibility in the ball of the foot area of the front of the foot, the physiological development of the foot is promoted in all motions. In contrast to the related art, in which the flexibility is determined by the material selected and by the thickness of the sole, the flexibility of the sole is primarily achieved through the geometric configuration of the sole.

In this context, the contraction can be configured such that the area of the outsole in the front of the foot is connected via a crosspiece to the area of the outsole in the back of the foot. As a result, a single-piece injection-molding of the sole is possible.

The shoe is particularly suitable as a shoe for small children, because it supports the first steps of the small child while making possible the natural play of the toes, as a result of which the development of the foot is possible in a natural manner.

Advantageously, the profiling is executed in the form of parallel or ray-shaped grooves, which extend at least partially over the width of the shoe. The extension over the

entire width of the shoe is particularly advantageous, the profiling being able to be made of a plurality of materials of differing elasticities. As a result, it is possible to increase the flexibility overall while maintaining the necessary minimum thickness for manufacturing the sole and for achieving a sufficient stability of the sole.

It is advantageous to arrange the contraction of the outsole on the interior side of the shoe, because the movement of the foot in rolling from heel to toe is particularly pronounced in this area.

The contraction can be extended into the area of the back of the foot, so that if a shoe heel is present, it is even partially chamfered. Greater flexibility is achieved as a result.

For improving the flexibility, the thickness of the outsole is advantageously reduced to the thickness required for manufacturing. In order to give the foot sufficient support despite the elastic sole, in addition to an anatomically shaped footbed, a heel plate or a flexible heel brace is provided for a heel guide, which is advantageously configured so that the Achilles tendon is free.

To improve the position of the foot, it is advantageous if the outsole in the area in the back of the foot has a heel. This heel extends under the heel bone of the child's foot in the direction of the forefoot and can be narrowed in the area of the interior of the foot as a result of the contraction.

#### Brief Description of the Drawings

In the drawing, a children's shoe according to the present

invention is depicted. The figures show:

Figure 1 a children's shoe according to the present invention in a view from below,

5 Figure 2 the children's shoe from Figure 1 in a side view emphasizing a reinforced heel area,

Figure 3 a further children's shoe according to the present invention in a view from below, and

10 Figure 4 an enlargement of the sole of the children's shoe from Figure 3 in a side view.

#### Description of the Exemplary Embodiment

15 Figure 1 depicts the lower side of an outsole 1. Outsole 1 is subdivided into an area in the forefoot 2 and an area in the back of the foot 3, which are connected to each other by a connecting area 4. Connecting area 4 arises as a result of a contraction 5 on interior side 6 of foot 7, whose contour is indicated by a dashed line. Also running along this  
20 dashed-line contour is the undepicted upper part, that extends underneath the foot, so that in the area of contraction 5 the upper part is without any covering from below by sole 1.

25 In area 3 in the back of the foot, there is a heel 8, which is partially cut out in the area of contraction 5. Heel 8 offers protection against slipping in climbing or going up stairs. In area 2 in the forefoot, a profiling 9 is provided, which extends from presupposed position 10 of the  
30 ball of the foot on interior side 6 of the foot to the exterior side of the foot.

35 Due to contraction 5, connecting area 4 is configured in a reduced width with respect to the projection surface of the foot, and in the depicted exemplary embodiment it is

narrowed only on interior side 6 of the foot. However, it is advantageous to provide an appropriate contraction also on the exterior side of the foot. In this way, a connecting piece between the area of the forefoot and the area of the back of the foot arises.

In order to assure the foot sufficient support in the shoe despite the very flexible outsole, a heel plate 21 is provided, which is depicted in Figure 2 and which is arranged in an upper part 22, the heel plate extending downwards in the area of the Achilles tendon, so that the Achilles tendon is free, the heel plate nevertheless being pulled up in the area of the front of the heel bone and extending beyond heel 8 to the exterior edge of the foot. Alternatively, a heel brace arranged on the exterior can also be used to generate an improved connection of the shoe to the foot in the heel area.

The children's shoe depicted in Figure 3, in the area of the toe joint, i.e., at the transition between the middle of the foot and the toes, has a profiling 9, extending over the entire width, in the form of crosspieces 9.1-9.4 and grooves 10.1-10.5. Taken together with contraction 5, a shoe of great flexibility is achieved in this manner, which little hinders the torsion of the foot and otherwise favors the performance of the foot in the area of the forefoot.

In Figure 4, an enlargement of the sole of the children's shoe from Figure 3 is depicted in a side view of the exterior side of the shoe. Profiling 9 can be seen in the form of crosspieces 9.1-9.4, and grooves 10.1-10.5, which can be filled up at least partially by a second material. This embodiment has less bending resistance and therefore favors the deformability while at the same time assuring a sufficient thickness of the sole for protecting the foot.

Crosspieces 9.1-9.4 widen in the direction of the exterior edge of the shoe, so that, as seen over the width of the shoe, in response to the performance of the foot, the exterior edge of the shoe has less bending resistance in the sole than the interior edge of the shoe.

Beginning from heel 8, the thickness of the sole decreases not only as a result of the contraction, which is not visible in this representation, but also as a result of the reduction in the thickness of the sole in area 11.

It is furthermore essential for comprehending the present invention, that the upper of the shoe in the area of contraction 5 is free on the lower side of the shoe, i.e., not covered by the sole. In the area of the exterior side of the foot, it is possible to configure the contraction as an arch that is covered only by a thin layer of sole material.



What is claimed is:

1. A shoe, having an outsole (1) and an upper part (22) connected thereto, the outsole (1) having a contraction (5) in the area between the forefoot (2) and back of the foot (3),  
wherein the outsole (1) in the area of the contraction (5) has a connecting area (4) having a flexibility such that a torsion of the forefoot with respect to the back of the foot is impeded as little as possible, and in the area (10) of the forefoot (2), the outsole (1) is provided with great flexibility with respect to the development of the foot, as a result of an appropriate profiling (9).
2. The shoe as recited in Claim 1,  
wherein the shoe is configured as a shoe for small children.
3. The shoe as recited in Claim 1 or 2,  
wherein the profiling has parallel or ray-shaped grooves (10), which extend at least partially over the width of the shoe.
4. The shoe as recited in Claim 3,  
wherein the grooves extend over the entire width of the shoe.
5. The shoe as recited in one of Claims 1 through 4,  
wherein the profiling is made up of at least two materials having different elasticities.
6. The shoe as recited in one of Claims 1 through 5,  
wherein the constriction (5) of the outsole is arranged on the inner side (6) of the shoe.

7. The shoe as recited in one of Claims 1 through 5, wherein the constriction (5) of the outsole is also optionally arranged on the outer side (9) of the shoe.
8. The shoe as recited in one of Claims 1 through 7, wherein the constriction (5) is extended into the area of the back of the foot.
9. The shoe as recited in one of Claims 1 through 7, wherein the thickness of the outsole (1) is reduced to the thickness required by the conditions for manufacturing.
10. The shoe as recited in one of Claims 1 through 8, wherein in the upper (22) a heel plate or a flexible heel brace (21) is provided for the heel guide, which is arranged in the area in the back of the heel, the Achilles tendon being kept free.
11. A children's shoe as recited in one of Claims 1 through 9, wherein the outsole (1) is provided with a heel (8) in the area on the back of the foot (2).

## Abstract

A shoe, in particular a children's shoe, having an outsole (1) and an upper (22) that is connected thereto, the outsole (1) in the area between the forefoot (2) and the back of the foot (3) having a constriction (5), does not of its own accord sufficiently promote the natural rolling motion of the foot when the foot is developing and when the child takes its first steps.

As a result of the fact that the outsole (1) in the area of the constriction (5) has a connecting area (4) having a degree of flexibility such that a torsion of the forefoot with respect to the back of the foot is impeded as little is possible, and that, in the area (10) of the forefoot (2), the outsole (1) is provided with a high degree of flexibility with respect to the performance of the foot as a result of a corresponding profiling (9), the natural suppleness of the child's foot can be maintained, while simultaneously providing sufficient protection for the child's foot during walking.

(Figure 1)